

# Floodplain and Shoreland Management

# Notes

## How Much Fill Do I Need?

Floodplain administrators are frequently asked how much fill is required when development is proposed in the floodplain. The answer is "It depends." The amount of fill needed for a project is dependent on the planned use of the property as well as why the applicant wants to be "out of the floodplain".

Federal, state and local floodplain management regulations and the NFIP flood insurance requirements only apply to development within the Special Flood Hazard Areas (SFHA). Homeowners and developers frequently elevate structures in order to avoid having to either purchase flood insurance or meet substantial damage/substantial improvement requirements in the future. They are often surprised to find that meeting the minimum requirements of the NFIP (44 CFR 59-72) may remove the flood insurance requirement, but does not remove the property from the requirements of NR 116 and the local floodplain ordinance.

The NFIP minimum standards require the lowest floor (including the basement) of a residential structure to be elevated to at or above the base flood elevation (BFE). An elevated structure would be considered compliant, but would still require flood insurance. The flood insurance requirement would be waived only if the residence was elevated on fill with the lowest adjacent grade at BFE or above and a Letter of Map Revision Based on Fill (LOMR-F) was obtained from FEMA. The minimum requirements for obtaining a LOMR-F include meeting all of the standards found in FEMA Technical Bulletin 10-01 and ensuring that the responsible local official has signed the Community Acknowledgement Form. Structures elevated on fill are also considered outside

of the floodplain under federal standards and are no longer regulated by the requirements of the NFIP, but still subject to local floodplain zoning requirements.

Wisconsin has higher standards for elevation than the NFIP. The same fill requirements apply to residential and commercial development. NR 116 requires a compliant structure to be placed on fill at least one (1) foot above the BFE, the first floor to be at least two (2) feet above BFE and the basement at no less than BFE if the basement walls are floodproofed to two (2) feet above BFE. The structure would also have to have dryland access to land outside of the SFHA. The applicant would need to prove that the proposed fill would not obstruct flood flows or cause an increase in BFE. Such a structure would be considered compliant, but would still be considered within the floodplain for regulatory purposes. In order to be considered out for regulatory purposes, the structure would need to be elevated on fill at least two (2) feet above BFE, have dryland access as well as proof that there is no obstruction to flow. Neither structure would be exempt from the flood insurance requirements unless a LOMR-F was obtained from FEMA.

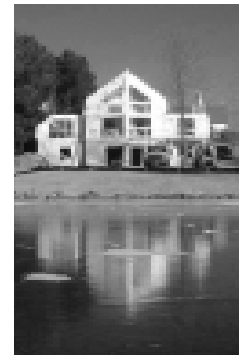
Most local floodplain ordinances are based in the WDNR Model Ordinance. However, some communities are more restrictive than the state. Any proposed development in the SFHA must also meet the requirements of the local ordinance as well as NR 116 and the NFIP.

When asked the question "How much fill do I need?", a floodplain administrator should respond that to be out for both flood insurance and regulatory purposes a structure must:

- have a LOMR-F from FEMA;



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- be elevated on fill at least two (2) feet above BFE; and
- have dryland access.

To be out for flood insurance purposes only, a structure must:

- have a LOMR-F from FEMA;
- be elevated on fill at least one (1) foot above BFE;
- have the first floor elevated at least two (2) feet above BFE; and
- have dryland access.

## Economic impact studies done on phosphorus, shoreland zoning rules

New economic impact studies required by the Legislature are done and available online for new rules aimed at cutting phosphorus from wastewater dischargers and new statewide shoreland zoning rules aimed at protecting water quality and habitat.

The phosphorus study is found on DNR's website, [dnr.wi.gov](http://dnr.wi.gov), by searching for "phosphorus rules" [<http://dnr.wi.gov/org/water/wm/wqs/phosphorus/index.htm>] and the shoreland zoning study is found by searching for "shoreland zoning rules." [<http://dnr.wi.gov/waterways/shoreland/news.htm>]

### Background on phosphorus rules

Phosphorus has long been recognized as the controlling factor in plant and algae growth in Wisconsin lakes and streams. Small increases in this nutrient can fuel excessive growth of aquatic plants and algae, including toxic blooms of blue-green algae, which in turn can reduce recreational use and property values and put public health at risk.

DNR rules aimed at cutting phosphorus from municipal and industrial wastewater dischargers took effect Dec. 1, 2010, and were recently approved by the U.S. Environmental Protection Agency. [http://dnr.wi.gov/news/BreakingNews\\_Lookup.asp?id=2443](http://dnr.wi.gov/news/BreakingNews_Lookup.asp?id=2443)

Under the new rules, DNR determines the phosphorus discharge limits a municipal or industrial wastewater discharger must meet based on the condition and quality of a watershed. Limits can vary depending on whether a waterway is already impaired by phosphorus, among other factors.

DNR can include a compliance schedule in a discharger's Clean Water Act permits if phosphorus discharge limits are either new or more stringent than in the past. When the operators receive those permits, they are given time to evaluate compliance options and have a maximum seven to nine years to come into compliance with their phosphorus limits.

Traditional compliance options at municipal facility like upgrades and variances are available as well as innovative compliance options such as adaptive management and water quality trading. These novel compliance options are designed to achieve compliance with phosphorus limits in the most cost-effective manner possible.

Agricultural operators also are being required to cut phosphorus under revised runoff rules effective January 1, 2011.

### Background on statewide shoreland zoning rules

A second economic impact analysis looks at new shoreland zoning requirements aimed at reducing polluted runoff entering lakes/rivers and protecting fish and wildlife habitat.

The economic impact analysis predicts the expected outcomes of changes to minimum shoreland zoning standards that became effective Feb. 1, 2010. Wisconsin's original

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minimum statewide shoreland zoning standards were first set in the late 1960's. The key changes analyzed by the UW researchers are a new requirement that hard surfaces such as driveways, roofs and other "impervious surfaces" constitute 15 percent or less of the property within 300 feet of the shoreline; an increase in protection for plants and trees within 35 feet of the shoreline; and a more consistent treatment of legal non-conforming structures.

The economic impact analysis did not analyze the impacts of any proposed changes that DNR will be pursuing to the rule revision effective Feb. 1, 2010. In March 2012, Gov. Scott Walker and the Natural Resources Board granted approval to DNR to begin the rulemaking process again to further amend the shoreland zoning rules. The proposed changes will address concerns expressed by some local government officials with administration and implementation of the rule.

For more information on the phosphorus study contact Jim Baumann at either [james.baumann@wisconsin.gov](mailto:james.baumann@wisconsin.gov) or (608) 261-6425.

For more information on the shoreland zoning study contact Heidi Kennedy at either [heidi.kennedy@wisconsin.gov](mailto:heidi.kennedy@wisconsin.gov) or (608) 261-6430

## FEMA Announces New Letter of Map Amendment Guidance

After months of discussion with FEMA Letter of Map Amendment (LOMA) review staff, we are excited to announce that communities which have acquired LiDAR topographic data can now use it to assist property owners in obtaining a LOMA.

LiDAR, which stands for Light Imaging, Detection and Ranging is an optical remote sensing technology that can measure the distance to topographic features by illuminating the target with light, often using pulses from a laser. LiDAR technology has applications in many fields, including contour mapping for producing floodplain boundaries.

If the following standards can be met, applicants can now submit LiDAR data to the LOMC clearinghouse as part of a LOMA application in lieu of a certified elevation study by a professional engineer or land surveyor:

- Generic letter stating "these contours are derived from LiDAR flown in (insert date)..." The letter needs to be certified by the PE that is going to certify the entire dataset.
- An overlay of the subject (structure or property depending on the request type) onto the labeled contours.
- To derive the Lowest Adjacent Grade (LAG) elevation, the lowest adjacent contour must be identified and then either one foot or half the contour (whichever is more conservative) must be subtracted from this elevation. This is a conservative approach but LiDAR is only designed to be used when a subject is well above the Base Flood Elevation (BFE).
- LiDAR data in lieu of an elevation survey can only be used for LOMAs (not for LOMR-Fs, CLOMR-Fs, etc).
- It can only be used for individual requests, not multi-lot applications, entire subdivisions, communities, etc.

For further information, please contact Eric Ratcliffe, LOMA Project Manager for FEMA, at [Eric.Ratcliffe@atkinsglobal.com](mailto:Eric.Ratcliffe@atkinsglobal.com).

## NFIP Reform 2012

This past July the President signed into law the “Biggert-Waters Flood Insurance Reform and Modernization Act of 2012.” The legislation will extend the National Flood Insurance Program (NFIP) for five years and will require much-needed reforms to ensure that the program remains solvent.

In addition to reauthorization, the legislation includes reforms to modernize the NFIP. These include phasing out subsidies for many properties, raising the cap on annual premium increases from 10 percent to 20 percent, allowing multifamily properties to purchase NFIP policies, imposing minimum deductibles for flood claims, requiring the NFIP administrator to develop a plan for repaying the debt incurred from Hurricane Katrina, and establishing a Technical Mapping Advisory Council to deal with map modernization issues.

The legislation would also require the Government Accountability Office (GAO) to conduct a study on the prospect of adding business interruption and additional living expenses coverages to the NFIP and would require the Federal Insurance Office (FIO) to study and submit a report to Congress on natural disaster insurance issues and possible legislative solutions.

In recent years, the NFIP has been maintained through a series of short-term extensions, with lapses to the program occurring on numerous occasions. During a lapse, no new flood insurance policies can be written, which causes delays or cancellations for real estate sales in which flood protection for the property is required. Had Congress not acted, the program would have lapsed again at the end of July.

One of the most noticeable changes will be the elimination of premium subsidies for second homes and vacation homes. Because these properties typically enjoy significant subsidies, waterfront vacation homes could see premium increases of 50% or more when the provisions of the act take full effect next year. While a burden for some, this move toward risk-based pricing is necessary for the long-term stability of the program. The five-year extension will provide certainty in the flood insurance program thereby increasing consumer and business confidence in the NFIP. Below are some of the highlights of the Act:

### **Flood Insurance**

Removes subsidized rates (pre-FIRM rates) for the following classes of structures and allows rates to increase by 25% per year until actuarial rates are achieved:

- Any residential property that is not the primary residence of an individual
- Any property that has incurred flood related damages that cumulatively exceed the fair market value of the property
- Any business property
- Any property that after the date of the Bill has incurred substantial damage or has experienced “substantial improvement exceeding 30 percent of the fair market value of the property.
- Any new policy or lapsed policy, or any policy for a newly purchased property.
- Any severe repetitive loss property
- Any policy for which the owner has refused a FEMA mitigation offer under the Hazard Mitigation Grant Program, or for a repetitive loss property or severe repetitive loss property.
  - Repetitive Loss means two or more claims of over \$1000 over any ten year period.
  - Severe Repetitive Loss means at least four claims of over \$5,000 or at least two claims that cumulatively exceed the market value of the building.

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Other insurance related changes include:

- Annual rate increase limits go from 10 percent to 20 percent.
- Allows premiums to be paid either annually or in more frequent installments.
- Limits the use of force-placed flood insurance by requiring cancellation and refund of premiums upon proof of a borrower's existing flood insurance coverage.
- Increased insurance rates due to new maps must be phased in over a five-year period.
- Lender penalties for non-compliance with mandatory flood insurance purchase requirements is increased from \$350 to \$2000 per violation, and the limit of fines for any lending institution over a calendar year is removed. It was \$100,000.

Flood insurance premiums will gradually rise to help pay down program debt and establish a reserve fund. Rates must be set to cover the average historical loss year, including catastrophic loss years, in accordance with generally accepted actuarial principles. In the past, potentially catastrophic loss years were not calculated. That would also increase rates since the increase in flood damages has meant that current rates do not cover the historical average loss year.

FEMA must develop a ten-year repayment plan for the current insurance fund debt and establish a reserve fund of at least one percent of the total potential loss exposure. The Bill also allows private flood insurance to satisfy flood insurance coverage requirements.

### **Mapping**

The bill establishes a Technical Mapping Advisory Council with membership coming from a wide range of professions, including state and local mapping partners. The Council would advise FEMA on flood mapping guidelines. It would also develop recommendations for future conditions mapping, including impacts of sea level rise and future development. FEMA must incorporate future risk assessment in accordance with recommendations of the Council, which must make recommendations on mapping future conditions within one year.

There are several requirements for future mapping. New flood maps, which will be watershed-based, must show 100-year and 500-year floodplains for all populated areas and growth areas, as well as areas with residual risk behind levees or below dams. Maps must show the level of protection provided by flood control structures and use the most accurate topography and elevation data available. New ground elevation data must be obtained when necessary.

FEMA will be required to notify property owners when their properties are included in, or are removed from an area covered by mandatory insurance purchase requirements. There is an authorization of \$400,000,000 per year for flood mapping for fiscal years 2013 – 2017, marking the first time that floodplain mapping has been specifically included as a Congressional authorization.

The bill formalizes a Scientific Resolution Panel to arbitrate when a community has received an unsatisfactory ruling with respect to an appeal of a revised flood insurance rate map. Appeals must be based on technical or scientific data.

The previous limit of 50% for state contributions to updated flood mapping has been removed, resolving a problem where states developed mapping data but FEMA could not use it to produce new maps.

### **Mitigation Programs**

NFIP funded mitigation programs (Repetitive Insurance Claims, Severe Repetitive Loss Properties, Flood Mitigation Assistance) are consolidated into a single program. The

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combined National Flood Mitigation Fund is to be funded at \$90 million per year. While the old Flood Mitigation Assistance and pilot severe repetitive loss program were funded at up to \$40 million per year each, the latter program has never been fully utilized in part due to its complexity. The new program simplifies and combines the three previous programs and includes the following:

- Flood Mitigation Plan can be part of a community's multi-hazard mitigation plan.
- Adds elevation, relocation or floodproofing of utilities as allowed mitigation activities.
- Adds demolition and rebuild as an allowed mitigation activity.
- Restructures federal share requirement:
  - Up to 100% for severe repetitive loss structures.
  - Up to 90% for repetitive loss structures.
  - Up to 75% for other approved mitigation activities.

### Studies

An assortment of studies is required including:

- Analysis of increasing the maximum coverage limits and the availability in the private marketplace of flood insurance in amounts that exceed current NFIP coverage limits.
- Annual program financial reports, including efforts to purchase substantially damaged properties and detailed analyses of the nature of losses.
- A report on Pre-FIRM structures, including length of ownership, income of owners, comparison of flood losses to those of post-FIRM structures, the cost of subsidies to pre-FIRM structures, and options for eliminating subsidies.
- A FEMA study of amending the legislation to use nationally recognized building codes as part of the floodplain management criteria.
- A Federal Insurance Office study of the current market for natural catastrophe insurance in the United States, including issues of affordability.

### Building Code Enforcement

Allows use of Community Development Block Grant funds for increasing staffing and training for local building code enforcement, and to provide flood hazard and flood insurance information to residents.

For more information on NFIP Reform go to the Association of State Floodplain Managers website at [www.floods.org](http://www.floods.org) under National Policy and Programs or contact Gary Heinrichs at [gary.heinrichs@wisconsin.gov](mailto:gary.heinrichs@wisconsin.gov).

## Endangered Species Act Contact Information

FEMA now requires that applicants for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill [CLOMA, LOMA, CLOMR-F, LOMR-F]) and Conditional Letters of Map Revision and Letters of Map Revision [CLOMR, LOMR]) show compliance with the Endangered Species Act (ESA) for CLOMAs, CLOMR-Fs and CLOMRs prior to obtaining the local community's signature on the Community Acknowledgement Form. (See "The NFIP and the Endangered Species Act", *Floodplain and Shoreland Management Notes*, Vol. 11, No. 2, Summer 2012). To request an endangered species review from the U. S. Fish and Wildlife Service, applicants should send a letter addressed to Peter Fasbender, Field Supervisor, U. S. Fish and Wildlife Service, 2661 Scott Towner Drive, New Franken, WI 54229. The letter must include a statement regarding the request for an endangered species review and the specific reason for the review (i. e. CLOMR) as well as the township, section and range for the parcel in question. The letter should also include a map of the specific parcel. Once the review is completed the U. S. Fish and Wildlife Service will respond with a letter stating what, if

any, endangered species are within the specified location. A copy of the response letter should be provided to the local zoning administrator.

For further information on obtaining an endangered species review, contact the U. S. Fish and Wildlife office at either 920-866-1717 or [GreenBay@fws.gov](mailto:GreenBay@fws.gov). For further information on FEMA and the Community Acknowledgement Form, contact Gary Heinrichs, WI NFIP Coordinator at either [gary.heinrichs@wisconsin.gov](mailto:gary.heinrichs@wisconsin.gov) or 608-266-3093.

## Zoning Challenge

The photo below shows the boundaries of the Special Flood Hazard Area (SFHA) and the hydraulic shadow of an upstream dam. The hydraulic shadow is the area determined to be at risk by inundation if the dam fails during the base flood. Several buildings lie outside of the SFHA, but are either fully or partially within the hydraulic shadow. Does the community have any authority to regulate either existing or proposed development within the hydraulic shadow?



Yes, local communities do have the authority to regulate development within the hydraulic shadow under both Chapter NR 116 and NR 333, Wisconsin Administrative Code. Ch. NR 116.08, Wis. Admin. Code *Uses downstream of dams*, requires that "areas downstream of dams shall be zoned and regulated by municipalities". Ch. NR 116.09 (1) (b) 5, Wis. Admin. Code outlines what information must be shown on the local floodplain maps. Ch. NR 333.05 (2), Wis. Admin. Code outlines the analyses that must be done as part of the dam failure analysis.

Once the dam failure analysis is approved by WDNR Dam Safety, the community is notified if a zoning change is required. The community is then responsible for amending the local floodplain ordinance to include the study and regulate the area as floodway.

## DNR Website for Mapping Status

The Department of Natural Resources has developed a website to provide communities and others with information regarding the Risk Map Program in Wisconsin. The website contains information on project status, the public open house schedule, the comment and appeal process, post preliminary map process and other mapping related issues.

Links to FEMA's website are included. The FEMA sites are for information on Letters of Map Change and the Map Service Center.

For further information regarding the Risk Map Program contact:

Katie McMahan - GIS/Process Issues  
[katie.mcmahan@wisconsin.gov](mailto:katie.mcmahan@wisconsin.gov)

Christopher Olds - Technical Issues  
[christopher.olds@wisconsin.gov](mailto:christopher.olds@wisconsin.gov)

Lee Traeger - FEMA  
[lee.traeger@dhs.gov](mailto:lee.traeger@dhs.gov)

The website is located at:  
<http://dnr.wi.gov/topic/floodplains/>

## Current Letters of Final Determination

Letters of Final Determination (LFD) have been issued for several counties. Once an LFD has been issued, all communities in the county participating in the NFIP have six (6) months to amend the local floodplain ordinance to include the new FIRMs and Flood Insurance Study. Communities which do not adopt by the effective date of the maps will be immediately suspended from the NFIP. Communities which do not currently participate in the NFIP have one (1) year to join the NFIP and adopt the new maps.

All ordinance amendments must be reviewed and approved by the DNR and FEMA before the effective date. For further information on ordinance amendments and adoption go to <http://dnr.wi.gov/topic/floodplains/communities.html> and download the appropriate DNR Model Floodplain Ordinance and Checklist and the Ordinance Approval Procedures. You may also contact your DNR Regional Engineer.

LFDs have been issued for the following counties and all the incorporated communities within the county:

County	Effective Date
Washburn County	October 2, 2012
Juneau County	October 16, 2012
Vernon County	November 2, 2012
Marquette County	December 18, 2012

For further information and updates on mapping issues go to <http://dnr.wi.gov/topic/FloodPlains/mapping.html>.

## Updating Your Floodplain Ordinance

Interested in updating your local floodplain ordinance? Download the latest Model Floodplain Ordinance at <http://dnr.wi.gov/topic/floodplains/communities.html> or contact Gary G. Heinrichs ([gary.heinrichs@wisconsin.gov](mailto:gary.heinrichs@wisconsin.gov)) or Miriam G. Anderson ([miriam.anderson@wisconsin.gov](mailto:miriam.anderson@wisconsin.gov)) for further information.



# Workshops/Conferences

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## 2012 Conference

October 10-12, 2012  
Sheraton Madison Hotel  
Madison, WI

The Wisconsin Association of Floodplain, Stormwater and Coastal Managers (WAFSCM) will be celebrating their 10th annual conference in October. The 2012 conference will be held October 10-12, 2012 at the Sheraton Hotel in Madison, WI. The theme for the 2012 conference will be "Making Waves! Our 10-year Event."

The conference starts on Wednesday, October 10, 2012 with three workshops:

- Certified Professional in Stormwater Quality (CPSWQ) Training presented by certified trainer Jennifer Hildebrand, CPESC, CPSWQ (WSB & Associates, Inc.).
- Certified Floodplain Manager (CFM) Refresher with speakers Dave Fowler, CFM (MMSD) and Jackie Monfils, PE, CFM, CPSWQ (Atkins). This workshop provides basic information that will be on the CFM exam.
- Aquatic Organism Passage (AOP) Design presented by Bobbi Jo Fisher (WDNR). This workshop is geared toward municipalities, highway departments, and engineers involved in design, permitting or inspection of culvert and bridge crossings. Culvert and bridge crossings have the potential to impact fish and other aquatic organisms by limiting movement along stream corridors. The removal or modification of fish barriers can have beneficial impacts on a stream ecosystem by restoring habitat connectivity and improving fish and other aquatic species populations.

Plenary and breakout sessions will be held on Thursday, October 11, 2012. A field trip to explore some water resource projects in the Madison area will be held on Friday, October 12, 2012.

For more information regarding the annual WAFSCM conference including registration and fees go to [http://wi.floods.org/Annual\\_Conference.htm](http://wi.floods.org/Annual_Conference.htm).

## Wisconsin Wetlands Association's 18th Annual Wetlands Conference

The Wisconsin Wetlands Association 18th Annual Wetlands Conference, Great Wetlands, Healthy Watersheds will be held February 12-14, 2013 at the Blue harbor Resort, Sheboygan, WI. The conference will highlight the environmental, socio-cultural, and economic value of wetlands and will promote the latest research on and techniques for wetland restoration and management. Registration will open mid-November 2012 with an early bird deadline of January 11, 2013. Conference details can be found at [www.wisconsinwetlands.org](http://www.wisconsinwetlands.org), or by calling 608-250-9971.

## WISCONSIN ASSOCIATION FOR FLOODPLAIN, STORMWATER AND COASTAL MANAGEMENT (WAFSCM)

Membership Application/Renewal Form For January 2011 – December 2011

Membership Fee: \$20.00

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone: \_\_\_\_\_ Ext.: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

Would you like to receive occasional announcements, newsletters and/or notices via E-mail: Yes \_\_\_ No \_\_\_

Other Affiliations: \_\_\_\_\_

Primary Interest: \_\_\_ Floodplain \_\_\_ Stormwater \_\_\_ Coastal

Specific Interest: \_\_\_\_\_

Please send a check for the annual Membership Fee of \$20.00 made payable to WAFSCM in care of:

Carrie Bristoll-Groll, PE, CFM  
 WAFSCM  
 c/o Stormwater Solutions Engineering, LLC  
 100 East Sumner Street  
 Hartford, WI 53027

If you have questions, contact Carrie Bristoll-Groll at either (262) 673-9697 or [cbg@stormwater-solutions-engineering.com](mailto:cbg@stormwater-solutions-engineering.com).

"Floodplain and Shoreland Management Notes" is published by the WDNR, Bureau of Watershed Management. Its purpose is to inform local zoning officials and others concerned about state and federal floodplain management, flood insurance, shoreland and wetland management, and dam safety issues. Comments or contributions are welcome.

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### Floodplain Contacts:

- Gary G. Heinrichs, 608-266-3093  
[gary.heinrichs@wisconsin.gov](mailto:gary.heinrichs@wisconsin.gov)
- Miriam G. Anderson, 608-266-5228  
[miriam.anderson@wisconsin.gov](mailto:miriam.anderson@wisconsin.gov)

### Shoreland Contacts:

- Water Management Specialist under Contact Information  
<http://dnr.wi.gov/topic/Waterways/>

### Dam Safety Contacts:

- Bill Sturtevant, 608-266-8033  
[william.sturtevant@wisconsin.gov](mailto:william.sturtevant@wisconsin.gov)
- Meg Galloway, 608-266-7014  
[meg.galloway@wisconsin.gov](mailto:meg.galloway@wisconsin.gov)